

AMENDMENTS TO THE CLAIMS

This listing of claims will replace all prior versions and listings of claims in the application.

1-9. (Cancelled)

10. (Currently amended) A receiver to operate in ~~in~~ a wireless communications system, ~~a~~ receiver comprising:

~~a demodulator having an~~ to output a signal having with a DC component;

a DC estimator to generate estimate values of the DC component in response to the demodulator output signal;

a DC averager to generate a time-averaged DC component from at least one of
a successive average of the estimate values, the average calculated
periodically over successive predetermined time intervals, or

a running average of the estimate values, the average calculated over a
predetermined number of estimate values; and

a subtracter to subtract the time-averaged DC component from the demodulator output signal ~~for receiving said output and subtracting a time average of said DC component therefrom.~~

11. (Currently Amended) The receiver of claim 10, wherein DC averager selects one of the successive average or the running average further comprising a DC averager for receiving said output, producing a time average of said DC component over a predetermined time, and providing said time average to an input of said subtracter.

12. (Currently amended) The receiver of claim 10 further comprising:

a low pass filter to condition the demodulator output signal before transmission to the DC estimator for receiving said output, an estimator for receiving an output of said low-pass filter to provide an estimate of said low-pass filter output, and an averager for receiving said estimate to produce said time average of said DC component.

13. (Currently Amended) The receiver of claim 10 wherein ~~said~~ the demodulator output signal of said demodulator comprises an in-phase output and a quadrature-phase output.

14. (Currently Amended) The receiver of claim 10 wherein said subtracter ~~unit~~ is coupled to a symbol decoder.

15. (Currently amended) A method comprising:

receiving a demodulator output signal having a DC component;
generating estimate values of the DC component;
generating a time-averaged DC component from at least one of
a successive average of the estimate values, the average calculated
periodically over successive predetermined time intervals, or
a running average of the estimate values, the average calculated over a
predetermined number of estimate values; and
subtracting ~~a time-averaged~~ the time-averaged DC component from the demodulator output signal ~~to obtain a resultant signal; and~~
~~transmitting the resultant signal to a symbol decoder.~~

16. (Currently Amended) The method of claim 15, wherein generating the time-averaged DC component comprises selecting one of the successive average or the running average further comprising time averaging a DC component of the demodulator output signal to obtain the time-averaged DC component.

17. (Currently Amended) The method of claim 15 wherein said receiving a demodulator output signal comprises: receiving an in-phase output and a quadrature-phase output ~~of the~~ a demodulator.

18. (Currently amended) A method for compensating DC offsets in a receiver of a wireless communications system, comprising:

receiving a demodulator output signal having a DC offset;

determining a time-average of ~~said the~~ DC offset over a predetermined period of time
from at least one of

a successive average of the estimate values, the average calculated
periodically over successive predetermined time intervals, or

a running average of the estimate values, the average calculated over a
predetermined number of estimate values;

subtracting ~~said the~~ time-average of ~~said the~~ DC offset from ~~said the~~ demodulator
output signal to obtain a resultant signal; and

transmitting the resultant signal to a symbol decoder.

19. (Currently Amended) The method of claim 18 wherein said receiving a demodulator
output signal comprises receiving an in-phase output and a quadrature-phase output of ~~the a~~
demodulator.

20. (Currently Amended) The method of claim 18 wherein said determining a time-average
of ~~said the~~ DC offset comprises low-pass filtering ~~said the~~ demodulator output signal;
estimating a DC component in ~~said low-pass the~~ filtered ~~demodulator output~~ signal, and
averaging ~~said the~~ estimated DC component over ~~a the~~ predetermined period of time.

21. (New) A device capable of use in a communications system, the device comprising:

a DC estimator to receive an input signal and to generate corresponding estimate
values of an instantaneous DC level;

a DC averager to generate a time-averaged DC component from at least one of
a successive average of the estimate values, the average calculated
periodically over successive predetermined time intervals, or

a running average of the estimate values, the average calculated over a
predetermined number of estimate values; and

a subtracter to remove the time-averaged DC component from the input signal.

22. (New) The device according to claim 21, further comprising:

 a demodulator to receive a modulated composite signal and output a demodulated signal, the input signal being derived from the demodulated signal.

23. (New) The device according to claim 22, further comprising:

 an automatic gain correction unit to receive an uncorrected modulated composite signal, provide gain correction, and output a corresponding gain corrected modulated composite signal to the demodulator; and

 a symbol decoder to receive a demodulated component output from the subtracter unit and output a corresponding plurality of symbol bits.

24. (New) The device according to claim 23, further comprising a low pass filter to receive the demodulated signal, the output of the low pass filter being the signal derived from the demodulated signal.

25. (New) The device according to claim 23, wherein the device is a handset in a wireless communication system, further comprising:

 an antenna to communicate a wireless signal to the automatic gain correction unit;
 a converter unit to convert the plurality of symbol bits output from the symbol decoder into a corresponding analog signal; and

 a transducer for converting the analog signal from the converter unit into an acoustic signal.

26. (New) The device according to claim 23, wherein the device is an integrated circuit adapted for use in a handset, the handset comprising:

 an antenna to communicate a wireless signal to the automatic gain correction unit;
 a converter unit to convert the plurality of symbol bits output from the symbol decoder into a corresponding analog signal; and

 a transducer for converting the analog signal from the converter unit into an acoustic signal.

27. (New) The device according to claim 26, wherein the communication system further comprises a transmitter to transmit the wireless signal to the antenna.

28. (New) The device according to claim 23, wherein the device is a programmable microprocessor running executable code in a handset configured to operate within the communications system.

29. (New) The device according to claim 23, wherein the uncorrected modulated composite signal is a quadrature phase shift keying signal.

30. (New) The device according to claim 21, the output of the DC averager being selected based on a mode of operation of the device.

31. (New) The device according to claim 21, said demodulator having an in-phase (I) output and a quadrature-phase (Q) output, and said subtracter unit having an in-phase (I) subtracter to subtract a DC component from the in-phase (I) output of the demodulator and a quadrature-phase (Q) subtracter to subtract a DC component from the quadrature-phase (Q) output,

wherein the output from the (I) subtracter and the output from the (Q) subtracter are input into the symbol decoder to produce the plurality of symbol bits.

32. (New) A device capable of use in a communications system, comprising:

an automatic gain correction unit to receive a signal, provide gain correction, and output a corresponding gain corrected signal;

a DC estimator to receive a signal derived from the gain corrected signal and generate estimate values of the gain corrected signal's instantaneous DC level;

a DC averager configured to generate a time-averaged DC component from at least one of

a successive average of the estimate values, the average calculated periodically over successive predetermined time intervals, or

a running average of the estimate values, the average calculated over a predetermined number of estimate values; and

a subtracter unit to receive the gain corrected signal from the automatic gain correction unit and to remove a time-average DC component therefrom, the averaged DC component derived from the output of the DC averager.

33. (New) The device according to claim 32, further comprising:

a symbol decoder to receive the signal output from the subtracter unit and output a plurality of symbol bits corresponding to the received signal.

34. (New) The device according to claim 33, further comprising a low pass filter to receive the gain corrected signal from the automatic gain correction unit and output a corresponding low pass signal component, the output of the low pass filter being the signal derived from the gain corrected signal.

35. (New) The device according to claim 33, wherein the device is a handset in a wireless communication system, the device further comprising:

an antenna to communicate a wireless signal to the automatic gain correction unit;
a converter unit to convert the plurality of symbol bits output from the symbol decoder into a corresponding analog signal; and
a transducer for converting the analog signal from the converter unit into an acoustic signal.

36. (New) The device according to claim 33, wherein the device is an integrated circuit adapted for use in a handset, the handset comprising:

an antenna to communicate a wireless signal to the automatic gain correction unit;
a converter unit to convert the plurality of symbol bits output from the symbol decoder into a corresponding analog signal; and
a transducer for converting the analog signal from the converter unit into an acoustic signal.

37. (New) The device according to claim 33, wherein the signal received by the automatic gain correction unit is a modulated signal.

38. (New) A device adapted to execute a method, said method comprising:

- receiving a gain corrected communication signal;
- generating DC estimate values of the gain corrected signal's instantaneous DC level;
- generating a time-averaged DC component from at least one of
 - a successive average of the estimate values, the average calculated periodically over successive predetermined time intervals, or
 - a running average of the estimate values, the average calculated over a predetermined number of estimate values; and
- subtracting the time-averaged DC component from the communication signal to obtain a resultant signal; and
- transmitting the resultant signal to a symbol decoder.

39. (New) The device of claim 38, said method further comprising:

- passing the gain corrected communication signal through a low pass filter to obtain a low pass signal.

40. (New) The device of claim 38, wherein the device is a handset in a wireless communication system, said method further comprising:

- changing an uncorrected modulated communication signal received by an antenna into the gain corrected communication signal;
- converting the plurality of symbol bits output from the symbol decoder into a corresponding analog signal; and
- converting the analog signal into an acoustic signal.

41. (New) The device of claim 38, wherein the device is an integrated circuit adapted for use in a handset, said method further comprising:

- changing an uncorrected modulated communication signal received by an antenna into the gain corrected communication signal; and

converting the plurality of symbol bits output from the symbol decoder into a corresponding analog signal,

wherein the handset includes a transducer for receiving the converted analog signal and converting the analog signal into an acoustic signal.

42. (New) The device of claim 38, wherein the gain corrected communication signal is a quadrature phase shift keying signal, said method further comprising:

separating the gain corrected modulated communication signal into an I component and a Q component;

said subtracting step comprising subtracting the time-average from the I component and subtracting the time-average from the Q component; and

said transmitting step comprising transmitting the subtracted I component and the subtracted Q component to the symbol decoder as the resultant signal.